

pIRIR dating of Tokorozawa terrace in the northwest Musashino Upland of Kanto Plain, Japan

Shohei Maruyama^{1*}, Reisuke Kondo², Yusuke Komuro³, Takashi Suzuki⁴, Kunihiro Endo¹, Tatsuhiko Sakamoto⁵

¹Nihon University, ²Meiji University, ³Meiji Consultant co.,Ltd, ⁴Ome City, ⁵Mie University

In Tokorozawa and Kaneko terraces of the northwest Musashino Upland, those gravels have been thought to deposit during MIS 5e, because the Shimosueyoshi loam formation covered those gravels after Kaizuka (1957) and others. Based on the intercalation of the Brown Loam horizon underlying the Shimosueyoshi loam, however, the chronological position was revised as MIS 6 after Sugihara (1973), Ueki et al. (2007) and others, though there are no key tephra and dating data.

In this study, in order to obtain the direct ages of those gravels and the overlying loam of the Tokorozawa terrace, we applied elevated temperature post-IR IRSL (pIRIR; Buylaert et al., 2009) SAR method luminescence dating using polymineral fine grains.

Firstly we examined pIRIR dating of On-Pm1, AT and other tephra in the Kanto plain for checking the availability of the technique. As a result, pIRIR age values were consistent with known ages of On-Pm1, AT and other tephra.

Secondly in the Tokorozawa terrace, through the analysis of sand content of the Brown Loam horizon underlying the Shimosueyoshi loam (including SIP at the bottom), the Brown Loam horizon was divided into two units; the upper is aeolian loam, and the lower is flood loam. The pIRIR age for the upper part (loam) of the Brown Loam horizon is about 130 ka.

Based on the result and other measurements, the deposition of the Tokorozawa gravel had occurred until MIS6, and the Tokorozawa terrace had finally emerged about 130 ka.

Keywords: pIRIR dating, Tokorozawa terrace, chronology, Kanto Loam, tephra